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3. Electromagnetic radiation

3.A *Gamma radiation*

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Rutherford - Recollections of the Cambridge Days

by MARK OLIPHANT, *Government House, Adelaide; formerly Research School of Sciences, The Australian National University, Canberra.*

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Ernest Rutherford attended Canterbury College, the University of New Zealand, and subsequently entered Trinity College, Cambridge, as a research student at the Cavendish Laboratory. When the Macdonald Chair of Physics at McGill University, Montreal, became vacant in 1898, he took up the post. There was ample opportunity for research at McGill and his work on radioactive bodies, particularly on the emission of alpha rays, was continued in the Macdonald Laboratory.

Rutherford returned to England in 1907 to become Langworthy Professor of Physics at the University of Manchester. It was during this period that his investigations into the scattering of alpha rays and the nature of the inner structure of the atom resulted in his greatest contribution to physics, his concept of the "nucleus". This eventually led to the theory of atomic structure which with later improvements, remains valid to this day. In 1908, when Rutherford was awarded the Nobel Prize for Chemistry, he reached the highest peak of eminence which any man of science could hope to attain. As the greatest physicist in the world, it was surprising that he should receive the Prize for Chemistry, but in fact the work that he had done was concerned almost as much with chemistry as with physics.

In 1919 he accepted an invitation to assume the position of Cavendish Professor of Physics at Cambridge. An inspiring leader of the Cavendish Laboratory, Rutherford steered numerous future Nobel Prize winners towards their great achievements and it has been pointed out by C. D. Ellis, his co-author in 1919 and 1930, that "the majority of the experiments at the Cavendish were really started by Rutherford's direct or indirect suggestions". He remained active and working until his death in 1937.

The author, one of the very few who worked closely with Lord Rutherford, and who knew him and Lady Rutherford personally, records here his recollections of Rutherford at home, on holiday and in the laboratory, together with such memories of this great man of science as he has been able to obtain from contemporaries, colleagues and students. The Foreword, written by Sir James Chadwick, gives additional insight into the character and achievements of Lord Rutherford.

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